The Changing Face of International Power Generation

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Ladies and Gentlemen,

I think it was Churchill in his great Iron Curtain speech at Fulton, Missouri, at the end of the last war, who referred to the American and the British as "Two great peoples divided by a common language" - I sincerely hope his remark will prove invalid today. At least during lunch, we will not have to resort to instantaneous translation as I did a few months ago in Moscow, when I was giving another short talk. Towards the end I noticed that terrible glazed look on the faces of the audience, which betrayed the fact that I had said something - through the interpreter - which was obviously totally incomprehensible. In fact I had used the expression "Out of sight, out of mind," but it was not until afterwards that I discovered it had been translated as "Invisible Idiot." Let that be a lesson against using the vernacular.

Before starting, just a few words about the World Energy Council. It was started in 1923, and with over a hundred member countries, is today the world's prime energy strategy and analysis organisation. Our study projects carry input from the industrialised world, the developing world, and of course the economies in transition in E. Europe and the Former Soviet Union. Almost more important, by working "bottom up" from the grass roots of local energy sectors we both collect input from the operatives - the very people, like yourselves, who manage energy - and we cross-fertilise data, information, and the results of our study work worldwide. We are increasingly acting as "facilitators" to "get things done." An example was holding the first ever African Energy Ministers Conference, which concentrated on power pooling arrangements and the first attempts at coordinated regional energy development. Before the conference such interconnections really only existed in the seven Southern African countries. Today, 1½ years later, interconnections are already being started in the six East African countries, the Arab Grid is being extended in the Maghreb (North Africa), and a central plan has recently been approved for power pooling in the French-speaking countries of Central and West Africa.

Although we are non-commercial and non-governmental, we work closely with governments the world over, as well as with over 40 of the leading institutions in the energy and energy-related sectors

- the World Bank, the principal regional financing agencies, the single energy associations - The World Petroleum Congresses, International Gas Union, UNIPEDE the European electricity institution, the World Trade Organisation, International Chamber of Commerce, the UN in all its guises, etc.

You may well not have heard of us if you are not intimately concerned with the international energy scene. Alternatively, you may have heard or seen references too much of the longer term work we do, but in either case I would suggest you are going soon to hear a lot more about us. The WEC US Member Committee is based in Washington and called the US Energy Association. Every three years we hold a major international Congress, always in a different country, and the next, the 17th WEC Congress, is being organised by the USEA in Houston in September 1998. Barry Worthington, its Executive Director, is with us today, and if you want to know more about its menu and attractions, please ask him.

"The Changing Face of International Power Generation" is a subject which could occupy several hours, but don't let me give you indigestion too early on. I will limit my remarks not to changing technologies and improved performance, not to changing fuel mixes, not to the incessant - but so far unproven CO_2 problems, not to SO_x's and NO_x's, of which you will have had your fill during this Conference, **BUT** to the international generator's marketplace, and even here I will devote little of what I have to say to the OECD countries but much to the developing world. I shall speak to future global electricity demand, generating capacity build, its financing issues, and to the commercial generating opportunities which now abound outside the States.

Such a rich diet may go some way to proving Voltaire's maxim that "Thinking depends on the stomach." So, while I remain hungry, you can chew over what I have said, because I get the very pronounced feeling in the current turbulence caused by the upheavals in your own domestic power sector, that US utilities are missing out on commercial opportunities in many overseas markets which, with prudence, could eventually offer attractive returns.

First of all, the general context. Energy demand perspectives including our own, those of the IEA, the World Bank and others, all point to a virtual doubling of global primary energy demand over the next 25 years. Let me interpret what that means. By 2020 more than 90m b/d of oil are likely to be consumed annually - an increase over today of 27m b/d, or the whole of OPEC's current crude oil production. Annual coal output will double to about 7 billion tonnes - almost double the entire known reserves in Canada or the UK. Annual gas demand will more than double to approximately 4 trillion cubic meters - almost equal to the entire current US gas reserves. In all this, fossil fuels will continue to dominate the global energy sector for decades to come, albeit with some ultimate growth of both nuclear and hydro. We see new renewables (solar, wind, etc.) remaining at or close to their 2% - 3% share of today's global demand, unless massive government or other funds are allocated to support their growth. Energy lead times are long and it is unlikely over the next 25 years that new renewables will either make in-roads into existing systems or play much of a part in the incremental growth during this time, unless the potential CO_2 problem becomes a scientific reality.

So much for the contextual perceived wisdom. It is not until these global demand figures are analysed, however, that the picture becomes clearer as to where or why the main demand will occur.

Up to 2020 it is likely that some 90% of this natural energy growth will occur in the developing countries - mainly in Asia and Latin America. North America, by contrast, will probably experience only a 12% - 13% growth up to 2020, while the 60% of global demand consumed by the OECD will drop to under 50% for the first time. By contrast, the developing countries demand will increase from 28% today to about 40% of the total by 2020. The East European and CIS demand is likely to remain constant at about 13%. But in this alarmingly short space of only 25 years, let us go further into the analysis. 90% of incremental energy demand growth will occur in developing countries, because of rapid population growth and economic development and the fact that growth in many cases will start from a low base. Over half of this incremental growth is likely to take place in just six areas: China, India, Indonesia, Brazil, Pakistan and the Malaysia/Thailand peninsula.

What of electricity generating capacity in all this? Well, we in the WEC, like many others, are predicting that more generating capacity will be built in the next 25 years than was built in the last one hundred. Much of this will result from the rapid urbanisation of developing countries, and much from the march of technology in transmitting power efficiently over much greater distances. In 1960 only 28 countries had greater urban than rural populations By 2020, 88 countries are expected to have 50% or more of their populations living in cities. Cities like Delhi, São Paulo, Manila, Bombay, Beijing, Jakarta and Teheran are all recording annual population growth rates of +3% or more - and do not forget that an annual growth rate of 3% means a doubling of population in 23 years. Do not also forget the result of a recent IEA study which showed that per capita consumption of energy in urban and peri-urban areas is usually between 2.5 and 3.0 times that experienced in rural communities. As an example of the long haul grid transmission, the huge 40 Gigawatt Inga hydro scheme on the Zaire River as the future supplier to markets as far afield as Egypt and Southern Africa, separated by 8,000 miles, is probably only some 20 years off. The feasibility study is already nearing completion and the political and economic in-fighting has already begun, not only for the project itself, but also for grid wayleaves, etc.

In 1920 Lenin defined communism as “Soviet power plus the electrification of the whole country.” He meant by this the projection, in one leap, of the whole of a backward country into the forefront of industrialisation. He might have been proved right had it not been for the might of your own economy together with those of others and backed by our political wills to overcome. However, let us concentrate today not on the flagging energy sectors of Eastern Europe and the CIS - where, to give you some idea of current economic regression, the Russian Federation consumed 20% less oil in 1994 than it did in 1993 - not on the slow growth of the OECD generating sectors - but on the developing countries and their rapidly expanding electricity demand.

Here we should differentiate between what I call “old assets” (existing power systems) and “new assets,” involved in the massive incremental growth of the power generating sector. The growth of these “new assets” is not only a phenomenon in its own right, it is turning out to be a considerable stimulus for global capitalism. Let us not forget that the global power sector at nearly 40% is by far the world’s greatest absorber of infrastructure capital. Electricity development consumes more finance than communications, highways, or water. It also carries huge political clout. A developing country politician can win more votes faster - if he or she operates within a voting system - by bringing in electrification to a village. Go to a country like Uganda and you will see this. Rural power development there has not followed any logical pattern - it has largely followed the whims of

individual ministers. Utilities in many such countries have until now been government owned and run, financed starved and the primary cause of lack of industrial productivity due to black and brown outs and general inefficiency. Often their revenues did not even cover their fixed costs because to a greater or lesser degree governments supported subsidies to consumers, who in many cases were unable economically to pay tariffs which covered costs.

Approximately 60% of all energy supplied globally to consumers today is subsidised by governments in one form or another - and a large part of this 60% inevitably occurs in the developing world. Consumer tariffs are therefore often low and many do not allow of a decent return on capital invested. So, with regard to such "new assets" the message must be to investigate and take action with great prudence and almost inevitably in conjunction with a local partner which knows the local scene.

But all this is changing. Governments faced with huge and increasing demand for electrification and new assets, are realising that they cannot cope with the pressures for finance, control and the day-to-day management and maintenance essential for all this new capacity. This has resulted in a number of different national reactions. On the one hand markets are being liberalised - although by different methods and at different rates, and this may offer commercial opportunities for the astute external investor: But, on the other hand, developing country governments often maintain their ingrained belief that energy must belong to the national patrimony, and some are correspondingly reluctant to adequately loosen controls. This causes a range of problems.

"Old electricity assets," the existing power systems, are in many cases also being liberalised. Let me give you some examples. Brazil is about halfway through its privatisation programme. Chile has fully privatised with adequate commensurate changes to government regulation to ensure overall economic and social success. Argentina is in the process of privatising by individual sector, generating, transmission and marketing. The Venezuelan electricity sector now has local private investors as well as foreign owned assets. In Africa, Egypt has privatised its generating sector. Kenya Light and Power, previously 100% government owned, now has only a minority government shareholding. In Zimbabwe ZESA, the national generator, with some 2,000Mw now has Malaysian minority shareholders, who will become majority shareholders when capacity is increased by 50% over the next 4 years. Of almost more importance, industrial consumer prices in Zimbabwe have been increased by some 250% and the "new asset" investment in generating capacity has a planned 20% real rate of return. In Zambia, the Copperbelt Power Company is to be sold; in Botswana a privatisation plan is to be announced shortly; and in Namibia local private sector shareholders now own all the principal generating and transmission assets. Further south, South Africa is in the throes of liberalising its power sector which generates 67% of all the power in the Continent of Africa.

In Asia, China and India, with some 10% of total current global electricity demand, are planning to build new capacity up to 2020 which, by that year, could equate to 25% of global generation. This could mean the construction of a medium sized power station every week up to 2020. In Malaysia and Indonesia, power demand is growing faster than the already rapidly expanding economies.

But there are caveats; relate all this growth to population predictions and you will find that by 2020 China, for example, will still only have a per head generating capacity equal to 30% that of the US today. Such rapid growth in the developing world coming on top of a lack of finance, often poor

technical management, and equally poor financial control, is now faced with a fourth quandary - that of increasing local pressure to apply very much more stringent environmental protection controls first in a local sense, and probably thereafter in a global sense.

We in the WEC have done some work with the World Bank, which shows that international financing (from both agency and private sector sources) will probably cover only between 30% - 40% of the huge future requirements of the electricity sector. In my view, the outstanding questions in this entire growth scenario are "Where will the other 60%-70% come from?", and "Will the potential lack of financing become a real constraint to growth?" Can, or will, many developing countries not only liberalise their power sectors but render then sufficiently attractive to investors to mobilise local capital? And at the same time will they set up the necessary institutions to attract the often high local savings rates? To know more about all this we now await the outcomes of two current WEC study projects, due to be completed shortly: the first on "Liberalisation of the Global Energy Sector," and the second on "Future Energy Financing." The results will make fascinating reading.

The scale of such private power development of itself probably presents the greatest problem of all. As an example, private sector power development may, in India, be regarded as the solution to one of the country's major development problems, but internal bureaucracy, the rivalry between government departments, and the way legal process work have all combined to slow down the whole process of private investment. Foreign investment rates, having soared during the last three years in Malaysia, Indonesia, Argentina and Chile, have also now begun to slow down. And over this whole scene is cast the shadow of the debt crisis of the 1980s. About 30% of the money then lent to Third World governments was to have been invested in power projects. Today's scene is different, but nonetheless tense. Today's investors are considerably more prudent than yesterday's, and the loans do not necessarily go to governments but it is still necessary for such agencies as the World Bank to provide some political protection by themselves taking small stakes in satisfactory projects. Risks however remain, not least depreciating exchange rates and the inability of governments to change regulations and tariffs at the same rate as they encourage private sector investments.

This, then, is the heart of the changing face of international power generation as seen by the WEC. Let me encourage you to come and hear much more about it, by participating in the WEC's 17th Congress to be held in Houston from 13th - 18th September 1998. We are expecting between 6,000 and 7,000 delegates to the event, one of a series which over the years have established themselves as the prime global events of the international energy scene.

If I have given you indigestion, this can only have resulted from one of two causes - boredom, in which case you have my apologies; or from a surfeit of information, in which case you have my commiseration. But above all, let us not forget that to operate in the developing world we all have to deal primarily with local politics and local politicians, and in this context you may care to remember the little aphorism of one of our British maverick socialist politicians, Lord Charlfont, who maintained that "you can always rely on politicians to produce wise, intelligent and statesmanlike decisions ..... having first exhausted all other options!"